Overweight Among Kauai First-Graders

Sally Jo Manea BSN

Sally Jo Manea BSN

Abstract

This 2003 study examined pre-school physical exam data on student health records of Kauai public school first-graders and found that 14.5% were at risk for overweight (between ≥85th and 94th percentile BMI-for-age), and 21.5% were overweight (≥95 percentile BMI-for-age). The prevalence of overweight among Kauai students was twice that reported nationally for the same age group.

Introduction

Overweight is the most prevalent health problem today in the United States with more than 60 percent of the adult population affected.[1] Alarming increases in the rate of overweight and obesity among children of all age groups are well documented in studies in the US and Europe.[2,3,4] A Hawaii study of students age 6 to 17 by Chai and colleagues between 1992 and 1996 reported 11.4 percent of students age 6 to 11 years old were overweight.[5] There are limited data for prevalence in Hawaii of overweight and obesity among children under age 6.

Overweight children are at increased risk for chronic disease and obesity as they grow older. Childhood obesity results in significant health and financial burdens for families, health delivery systems and society.[6]

This study sought to determine prevalence of risk for overweight and obesity among children entering public school for the first time in Kauai County, Hawaii.

Author's Affiliation:
Hawaii Department of Health
Family Health Services Division
Kauai District Health Office
Lihue, HI 96766

Correspondence to:
Sally Jo Manea BSN
Hawaii Department of Health
Family Health Services Division
Kauai District Health Office
3040 Umi Street
Lihue, HI 96766
Phone 808-241-3427
Fax 808-241-3480

Methods

Each Hawaii child entering school for the first time is required to have a pre-school physical exam. Height and weight are recorded on the Student Health Record (DOE form 14) which is kept in the health room of the school where the student attends. Age at pre-school entry ranges from 2 to 6 years, but most children are age 4 or 5 years when the pre-school physical is completed.

Between August and December of 2003, health records of all first-graders in Kaua'i public elementary schools were examined. Sex, birth date, physical exam date, height, and weight were recorded. Body mass index (BMI=weight/height^2) was calculated for each student and BMI-for-age and placement in growth percentiles was plotted using Center for Disease Control (CDC) growth charts for children age 2 to 20.[7]

Body Mass Index (BMI)-for-age calculation is recommended by the American Academy of Pediatrics for screening, assessing and tracking children for risk of overweight and obesity.[8] Center for Disease Control guidelines state that a child between the ≥85th and 94th percentiles of BMI-for-age is "at risk for overweight", and a child who is at or above the 95th percentile is "overweight and at risk for obesity".[9]

Permission to collect data from student health records was obtained from the Kauai District Superintendent of Education, and student confidentiality was maintained. No names were recorded.

Results

A total of 631 student records were examined, and 93 percent (n=586) were age 4 - 5 years at the time of pre-school physical exam. Data reported here are from the 4-5 year age group. Those between the 85th to 94th percentile BMI-for-age and at risk for overweight were 14.5% (n=85). Those at or above the 95th percentile, identifying them as overweight and at risk for obesity were 21.5% (n=126). (Table 1)

Discussion

Although 126 children were overweight and at risk of obesity, only 2 records showed physician comments related to obesity. These noted children had BMI of 32 and 29. A total of 13 of these young children had BMI over 25, the adult indicator of overweight. The study mean BMI for boys was 16.8 and for girls 16.3, placing the mean for the Kauai students in the 75th percentile BMI-for-age.

These data suggest a significant health problem in Kauai County. Fourteen and a half percent of first graders were at risk for overweight and 21.5% were overweight when entering pre-school at age 4 and 5 years. In contrast, the Healthy People 2000 Progress Review on Nutrition reported "data show that overweight in girls aged 4-5 increased from 7.6 percent in 1976-80 to 11.2 percent in 1988-94. For boys in that age group, the increase was from 4.4 to 5 percent."[10] National Health And Nutrition Examination Survey 1999-2000 data (NHANES IV) show a prevalence of overweight of 10.4 percent among 2 through 5-year-olds.[11] The prevalence of overweight

Table 1			
	Number of students	At risk for overweight	Overweight, at risk for obesity
Boys age 4	144	19.4% (28)	22.2% (32)
Boys age 5	144	15.9% (23)	22.9% (33)
Girls age 4	172	8.7% (15)	19.2% (33)
Girls age 5	126	15.1% (19)	22.2% (28)
Total	586	14.5% (85)	21.5% (126)

among Kauai County students entering pre-school was more than twice the prevalence of overweight for this age group nationally.

If 21.5% of Kauai students entering pre-school were overweight, it is likely that the other Hawaiian counties have similar overweight prevalence. Further study to determine overweight prevalence rates of other counties would be helpful for directing resources toward prevention.

When these data were presented to pediatric and family physicians at a Kauai hospital, the group acknowledged the problem but felt that advice and referrals provided had little affect on behavior change in the families served. These physicians reported few successes and expressed feeling powerless against the pervasive influence of media marketing which promotes unhealthy food and beverage choices and sedentary activities.

It is likely that family and pediatric physicians throughout the state experience similar frustrations about the effectiveness of individual treatment interventions with patients. It is not enough to work only with families to treat overweight. Clearly, environmental and societal changes have combined to steadily increase the prevalence of overweight children and adults. To slow this accelerating trend requires moving overweight and obesity prevention up the priority scale, and allocating resources to promote education and policy change in health systems, education institutions, and government.

References

1. The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity, 2001. Overweight and Obesity: At a Glance. [U.S. Department of Health and Human Services; Reports and Publications. Calls to Action on Public Health Issues home page]. Available at http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_glance.htm. Accessed January 28, 2005.
2. Prevalence of Overweight and Obesity among Children and Adolescents: 1999 – 2002. [National Center for Health Statistics home page]. Available at http://www.cdc.gov/nchs/products/pubs/pubd/hestats/overwgt99.htm. Accessed January 28, 2005.
3. Strauss RS, Pollack HA. Epidemic increase in childhood overweight, 1986-1998. *JAMA*. 2001; 286:2845-2848.
4. Bundred P, Kitchiner D, Buchan I. Prevalence of overweight and obese children between 1989 and 1198: population based series of cross sectional studies. *BMJ*. 2001;322:326-328.
5. Chai D, et al. Childhood overweight problem in a selected school district in Hawaii. *Am J Hum Biol*. 2003;15(2):164-77.
6. Dietz WH. Health consequences of obesity in youth: childhood predictors of adult disease. *Pediatrics*. 1998;101:518-25.
7. 2000 CDC Growth Charts: United States. Individual Growth Charts. Body Mass Index for Age for Boy and Girls Age 2 to 20. [National Center for Health Statistics home page]. Available at http://www.cdc.gov/growthcharts Accessed March 9, 2005.
8. Recommendations for Preventive Pediatric Health Care; Overweight and Obesity. [American Academy of Pediatrics, 2000 home page]. Available at http://www.aap.org/obesity/recommendations.
9. BMI-Body Mass Index: BMI for Children and Teens. [Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Nutrition and Physical Activity home page] Available at http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm. Accessed January 28, 2005
10. Progress Review Nutrition. Department of Health and Human Services Public Health Service. [Healthy People 2000 home page] Available at http://odphp.osophs.dhhs.gov/pubs/HP2000/PROGRVW/Nutrition Accessed March 9, 2005.
11. Ogden C, et al. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA*. 2002:288:1728-1732